Descriptions

3W isolated，DC-DC Converter





RoHS

CE Report EN 62368-1

UKCA Report BS EN 62368-1

Features

- Wide input voltage range (2:1)
- High efficiency up to 86%
- I/O isolation test voltage 1.5k VDC
- Output short-circuit protection(self-recovery)
- Operating ambient temperature range: -40℃ to +85℃
- Meet CISPR32/EN55032 CLASS A, without extra components

Applications

- Communication
- Instruments
- Industrial electronics

Selection Guide

Certification	Part No.	Input Voltage (VDC)		Output		Full Load Efficiency (%)Min./Typ.	Capacitive Load② (μF)Max.
		Nominal (Range)	Max.①	Voltage (VDC)	Current (mA) Max./Min.		
EN/BS EN	DEZP3-A0505	5 (4.5-9)	11	±5	±300/±15	74/76	2200
--	DEZP3-A0509			±9	±166/±8	74/76	1800
EN/BS EN	DEZP3-A0512			±12	±125/±6	76/78	1800
	DEZP3-A0515			±15	±100/±5	76/78	1000
--	DEZP3-B0505			5	600/30	72/74	4700
	DEZP3-B0512			12	250/12	75/77	2700
	DEZP3-B0515			15	200/10	75/77	2200
EN/BS EN	DEZP3-A1205	12 (9-18)	20	±5	±300/±15	79/81	2200
--	DEZP3-A1209			±9	±166/±8	82/84	2000
EN/BS EN	DEZP3-A1212			±12	±125/±6	82/84	1800
	DEZP3-A1215			±15	±100/±5	83/85	1000
--	DEZP3-B1203			3.3	909/46	72/74	4700
	DEZP3-B1205			5	600/30	79/81	4700
	DEZP3-B1212			12	250/12	81/83	2700
	DEZP3-B1215			15	200/10	80/82	2200
	DEZP3-B1224			24	125/6	81/83	1800
EN/BS EN	DEZP3-A2405	24 (18-36)	40	±5	±300/±15	80/82	2200
	DEZP3-A2412			±12	±125/±6	82/84	1800
	DEZP3-A2415			±15	±100/±5	82/84	1000
--	DEZP3-B2403			3.3	909/46	76/78	4700

	DEZP3-B2405			5	600/30	79/81	4700
	DEZP3-B2409			9	333/16	79/81	2700
	DEZP3-B2412			12	250/12	84/86	2700
	DEZP3-B2415			15	200/10	84/86	2200
	DEZP3-B2424			24	125/6	83/85	1800
	DEZP3-A4805	48 (36-75)	80	±5	±300/±15	80/82	2200
	DEZP3-A4812			±12	±125/±6	82/84	1800
	DEZP3-A4815			±15	±100/±5	83/85	1000
	DEZP3-A4824			±24	±63/±3	82/84	680
	DEZP3-B4803			3.3	909/46	74/76	4700
	DEZP3-B4805			5	600/30	80/82	4700
	DEZP3-B4812			12	250/12	84/86	2700
	DEZP3-B4815			15	200/10	84/86	2200
	DEZP3-B4824			24	125/6	82/84	1000

Notes:
①Exceeding the maximum input voltage may cause permanent damage;
②The specified maximum capacitive load for positive and negative output is identical;
③Product images are for reference only; the actual product shall prevail.

Specifications

Product Specifications	Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load /no-load)	5VDC input	--	789/40	834/45	mA
		12VDC input	--	316/30	347/35	
		24VDC input	--	152/15	165/20	
		48VDC input	--	77/5	85/10	
	Reflected Ripple Current	5VDC input	--	20	--	
		12VDC input	--	30	--	
		24VDC input	--	30	--	
		48VDC input	--	30	--	
	Surge Voltage (1sec. max.)	5VDC input	-0.7	--	12	VDC
		12VDC input	-0.7	--	25	
		24VDC input	-0.7	--	50	
		48VDC input	-0.7	--	100	
	Start-up Voltage	5VDC input	--	--	4.5	
		12VDC input	--	--	9	
		24VDC input	--	--	18	
		48VDC input	--	--	36	
	Input Filter		Pi filter			
	Hot Plug		Unavailable			
Output Specifications	Voltage Accuracy	5%-100% load	--	±1	±3	%
	No-load Output Voltage Accuracy	Input voltage range	--	±1.5	±5	
	Balance Of Output Voltage	Dual output, balanced load	--	±0.5	±1	
	Linear Regulation	Input voltage variation from low to high at full load	--	±0.2	±0.5	
	Load Regulation	5%-100% load	--	±0.2	±0.5	

	Transient Recovery Time	25% load step change		--	0.5	2	ms
	Transient Response Deviation			--	±2	±5	%
	Temperature Coefficient	Full load		--	±0.02	±0.03	%/℃
	Ripple & Noise①	20MHz bandwidth, nominal input voltage	24VDC output	--	100	120	mVp-p
			Others	--	50	80	
	Short-circuit Protection	Input voltage range		Continuous, self-recovery			
General Specifications	Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.		1500	--	--	VDC
	Insulation Resistance	Input-output resistance at 500VDC		1000	--	--	MΩ
	Isolation Capacitance	Input-output capacitance at 100kHz/0.1V		--	120	--	pF
	Operating Temperature	Derating when operating temperature up to 85℃ (see Fig. 1)		-40	--	85	℃
	Storage Temperature			-55	--	125	
	Case Temperature Rise	Ta=25℃		--	25	--	
	Pin Soldering Resistance Temperature②	Soldering spot is 1.5mm away from the case, 10 seconds max.		--	--	+300	
		Wave soldering, maximum 10 seconds		255	260	265	
	Storage Humidity	Non-condensing		--	--	95	%RH
	Switching Frequency (PFM mode)	100% load, nominal input voltage		--	200	--	kHz
	MTBF	MIL-HDBK-217F@25℃		1000	--	--	k hours
Mechanical Specifications	Case Material	Aluminum alloy					
	Dimension	32.00 x 20.00 x 10.80 mm					
	Weight	14 g (Typ.)					
	Cooling Method	Free air convection					

Note:

①The ＂parallel cable＂ method is used for Ripple and Noise test;

②The pin soldering temperature tolerance is not the actual temperature set by the soldering iron but the temperature required for proper solder joints. The actual temperature set by the customer should be determined comprehensively based on factors such as PCB thickness, copper coverage, soldering iron power, and soldering iron tip selection.

Electromagnetic Compatibility (EMC)

EMI	CE	CISPR32/EN55032	CLASS A(Bare component) /CLASS B (see Fig.3-② for recommended circuit)
	RE	CISPR32/EN55032	CLASS A(Bare component) /CLASS B (see Fig.3-② for recommended circuit)
EMS	ESD	IEC/EN61000-4-2	Contact ±4kV perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±2kV (see Fig.3-① for recommended circuit) perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±2kV (see Fig.3-①for recommended circuit) perf. Criteria B
	CS	IEC/EN61000-4-6	3 Vr.m.s perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-29	0%, 70% perf. Criteria B

Characteristic Curve

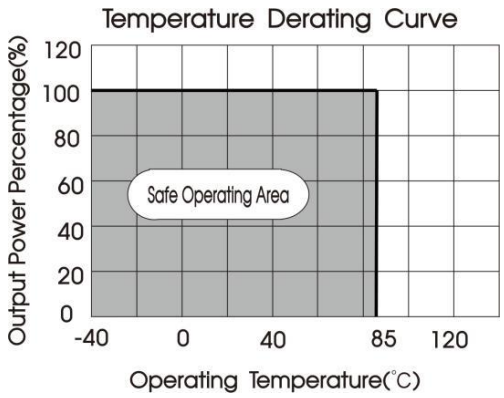
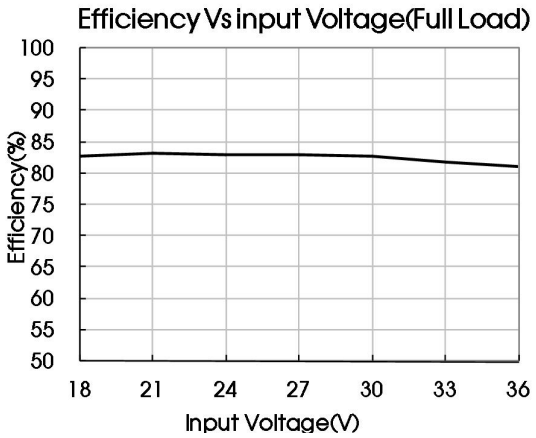
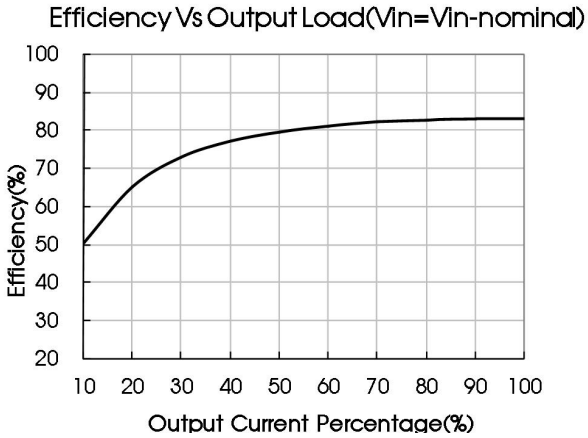


Fig. 1

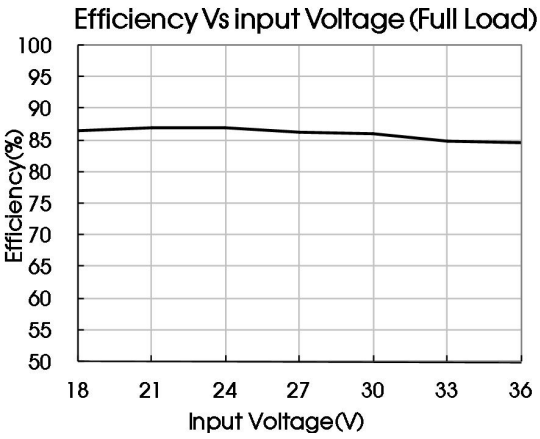
DEZP3-A2415



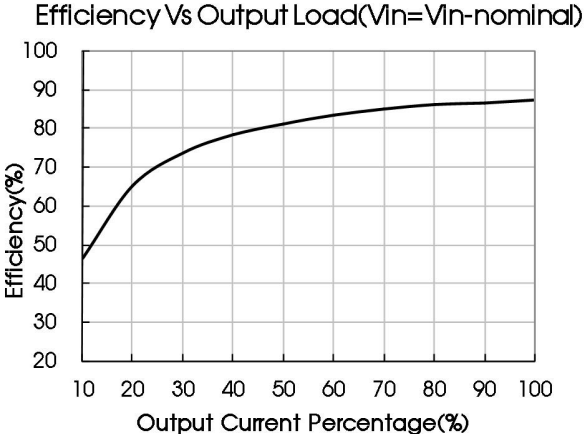
DEZP3-A2415



DEZP3-B2405



DEZP3-B2405



Design Reference

1. Output load requirements

In order to ensure the converter can work reliably with high efficiency, the minimum load should not less than 5% rated load when it is used. If the needed power is indeed small, please parallel a resistor on the output side (The sum of the efficient power and resistor consumption power is not less than 5%).

2. Typical application

①All the DC/DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.
②Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values Cin and Cout and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance is not exceeding the specified max. capacitive load value of the product.

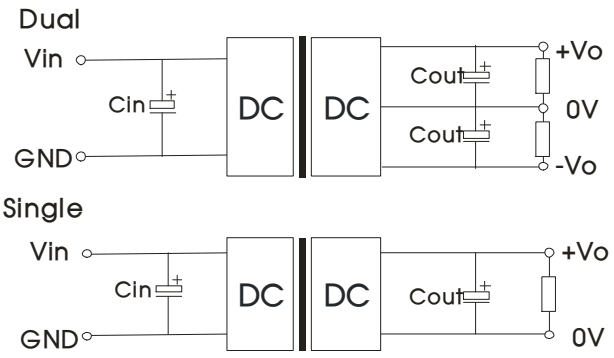


Fig. 2

Vin(VDC)	Cin	Cout
5	100μF/16V	Vo(3/±3/5/±5/9/±9):10μF/16V Vo(12/±12/15/±15V):10μF/25V Vo(24/±24V):10μF/50V
12	100μF/25V	
24	10μF/50V ~47μF/50V	
48	10μF/100V ~47μF/100V	

3. EMC compliance circuit

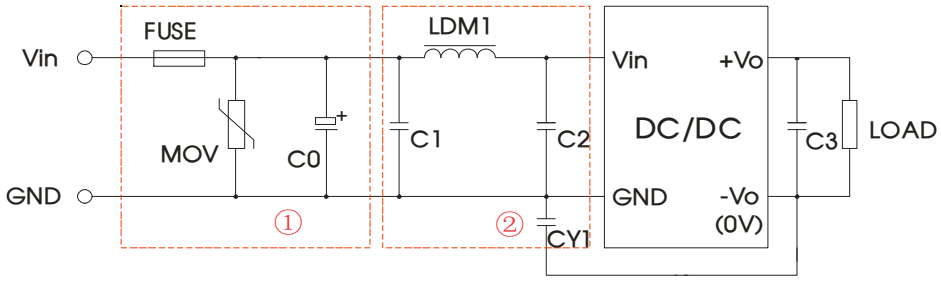


Fig. 3

Parameter description:

Model	Vin:5VDC	Vin:12VDC	Vin:24VDC	Vin:48VDC
FUSE	Choose according to actual input current			
MOV	--	S14K20	S20K30	S14K60
C0	1000μF/16V	1000μF/25V	330μF/50V	330μF/100V
C1	4.7μF/50V			4.7μF/100V
LDM1	12μH			
C2	4.7μF/50V			4.7μF /100V
C3	Refer to the Cout in Fig.2			
CY1	1nF/2kV			

Notes:
①For EMC tests we use Part ① in Fig. 3 for Immunity and Part ② for Emissions test. Selecting based on needs.
②If there is no recommended parameters, the model no require the external component.

4. Input current

When the electricity is provided by the unstable power supply, please make sure that the range of the output voltage fluctuation and the ripple voltage of the power supply do not exceed the indicators of the modules. Input current of power supply should afford the flash startup current of this kind of DC/DC module(see Fig. 4).

Generally: Vin=5V Iave =1297mA
Vin=12V Iave=648mA
Vin=24V Iave=307mA
Vin=48V Iave =158mA

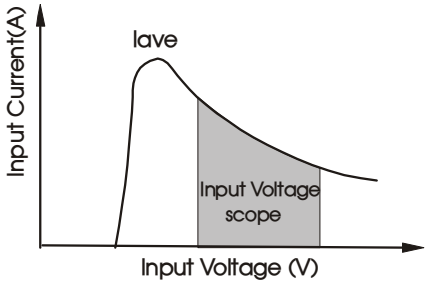
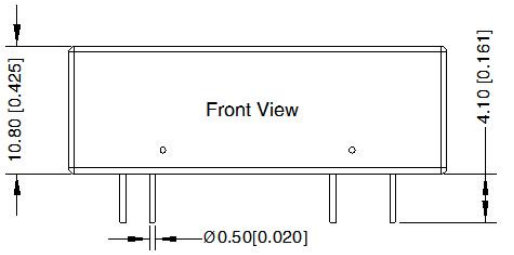
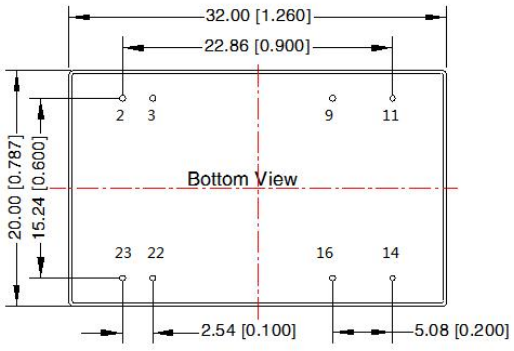


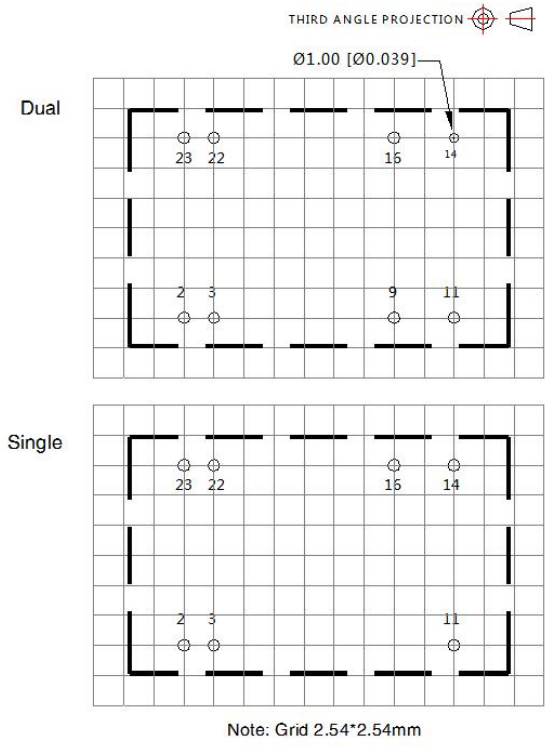
Fig. 4

Dimensions and Recommended





Note:
Unit: mm[inch]
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]



Note: Grid 2.54*2.54mm

Pin–Out		
Pin	Single	Dual
2,3	GND	GND
9*	No Pin	0V
11	NC	–Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

* Note: 5V input product without 9th pin
NC: Pin to be isolated from circuit

Notes:

1. Recommend to use module with more than 5% load, if not, the ripple of the product may exceeds the specification, but does not affect the reliability of the product;
2. The recommended unbalance degree of the dual output module load is ≤±5%; if the degree exceeds ±5%, than the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. The maximum capacitive load offered were tested at nominal input voltage and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above;
7. Specifications are subject to change without prior notice;
8. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.